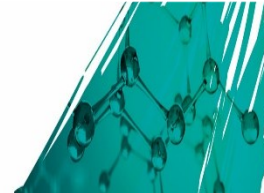


BTEC Assignment Brief

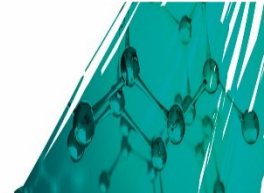
Qualification	Pearson BTEC International Level 3 Subsidiary Diploma in Applied Science Pearson BTEC International Level 3 Foundation Diploma in Applied Science Pearson BTEC International Level 3 Diploma in Applied Science Pearson BTEC International Level 3 Diploma in Biomedical Science Pearson BTEC International Level 3 Extended Diploma in Applied Science Pearson BTEC International Level 3 Extended Diploma in Biomedical Science Pearson BTEC International Level 3 Extended Diploma in Environmental Science
Unit number and title	Unit 13: Biological Molecules and Metabolic Pathways
Learning aim(s) (For NQF only)	A: Understand the structure and function of biological molecules and their importance in maintaining biochemical processes
Assignment title	Biological Molecules and Biochemical Processes
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are a trainee technician that has been working in a biochemistry lab for six months. Before moving onto the next phase of your technician training in another type of lab, your supervisor has asked you to assist the new trainee biochemistry technician who will be carrying out the same placement that you have just completed. You will need to demonstrate an understanding of biochemical processes and the effects of disrupting these, as well as include models of the relevant biological molecules that will enable you to show the structure and function of these in living organisms to the new trainee.
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Task	• Produce a leaflet to explain the links between the structure, function and roles of the following biological molecules in living organisms: - o Water, structure and bonding and importance - o Carbohydrates, including simple diagrams to show the CHO ratio compared to other molecules and how simple sugars combine to form disaccharides and polysaccharide - o Proteins, including the four levels of structure (primary, secondary, tertiary and quaternary) and side group structure and function
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	- o Nucleic acids (DNA and RNA), including diagrams to compare the structures and functions of these in the human body - o Lipids, including saturated fats, unsaturated fats, as well as the formation of diglycerides and triglycerides You should include photographs of models and/or relevant referenced diagrams of the biological molecules. State which chemical elements the molecules are formed from. Explain how the addition of elements (such as nitrogen, phosphorus and sulphur) can alter the structure and properties of the biological molecules. • Using correct scientific terminology, you must produce a report evaluating in detail the effects caused by the disruption of biological processes for the interference in plant growth regulators plus at least two of the following examples: - o Porphyria - o Lactose intolerance - o Diabetes mellitus - o Cystic fibrosis - o Exposure to carcinogens Your evaluation must identify where the disruption of these biological molecules is intentional for human benefit. You must provide details of the structures of the biological molecules as the basis for analysing what happens if there is a disruption to the structure or function, leading to major changes in normal biochemical processes.
Checklist of evidence required	A report that includes: • An evaluation of the effects of disruption of biological molecules and their effects in plants and humans. • Diagrams or photos of any models constructed to explain the molecular structure of biological molecules and the basic biochemical properties they show. • An explanation of the links between molecular structure, their properties and role and importance in the human body.
Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria you must show that you are able to:
A.D1	Evaluate the effects of disruption of biochemical processes in living organisms.
A.M1	Explain the links between the structure and function of biological molecules and their role in living organisms.
A.P1	Explain the structure of biological molecules in living organisms.
Sources of information to support you with this Assignment	All sources of information suggested are UK based. Centres are free to amend these sources to those available in the Country of delivery where more appropriate.



	Hartley, J. et al. <i>Pearson BTEC National Applied Science Student Book 1</i>, 2016 (ISBN; 978-1292134093) Ferrier, Denise R., <i>Biochemistry (Lippincott's Illustrated Reviews Series)</i>, 6th edition, Lippincott Williams and Wilkins, 2013 (ISBN: 978-1451187533). An illustrated book to help the learner – written expressly for advance level learners. http://chemistry.tutorvista.com/biochemistry/biological-molecules.html http://www.s-cool.co.uk/a-level/biology/biological-molecules-and-enzymes http://www.youtube.com/playlist?list=PLwBILz9eQBWOTFnPZALWOOhUBWdn5Rp22 http://www.biologymad.com/master.html?http://www.biologymad.com/biochemistry/biochemistry.htm http://revisionworld.com/a2-level-level-revision/biology-level-revision/biological-molecules
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